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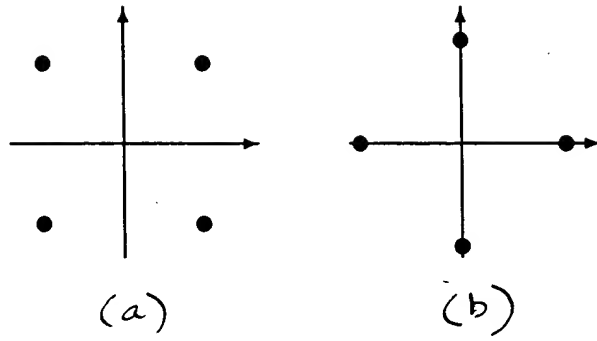


FIG. 1

b_1	b_0	u
0	0	1
0	1	j
1	0	-1
1	1	$-j$

FIG. 2

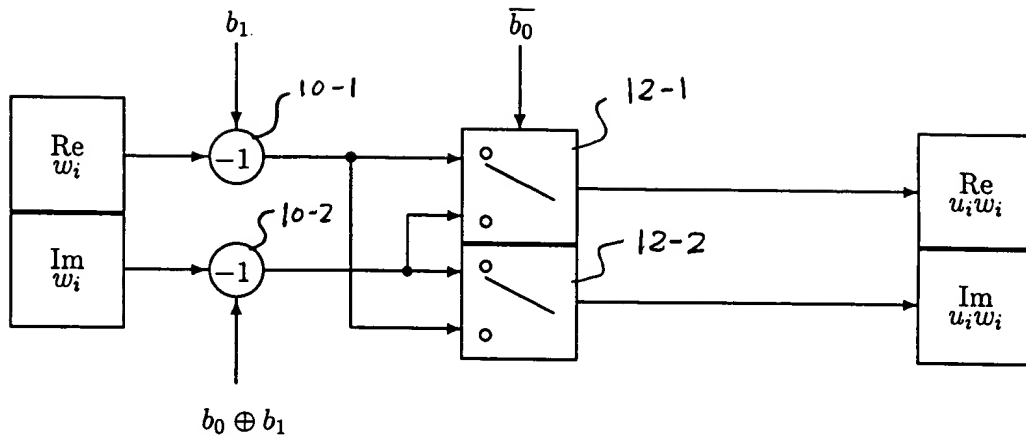


FIG. 3

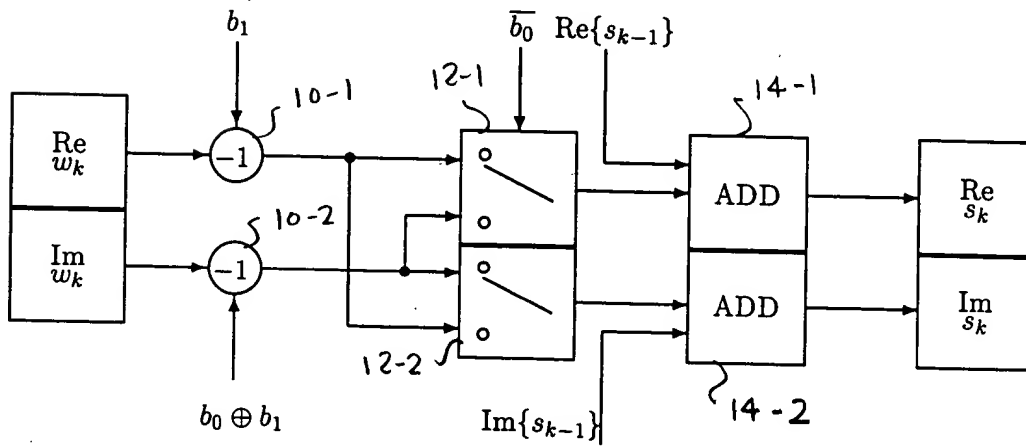


FIG. 4

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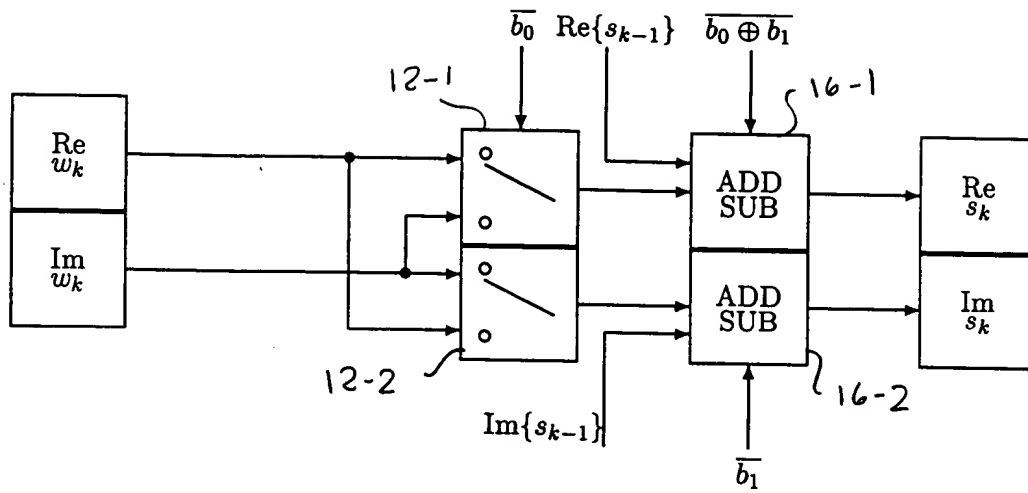


FIG. 5

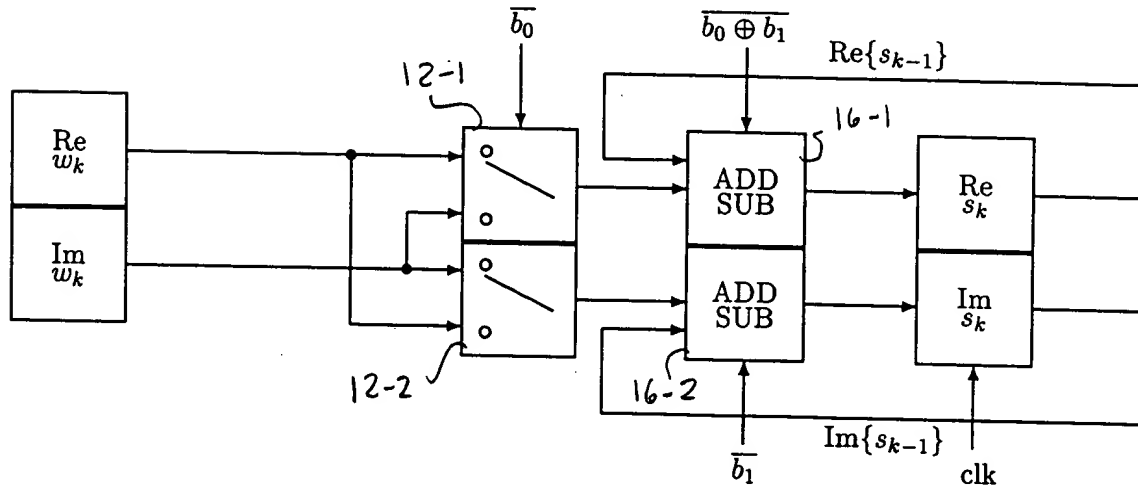


FIG. 6

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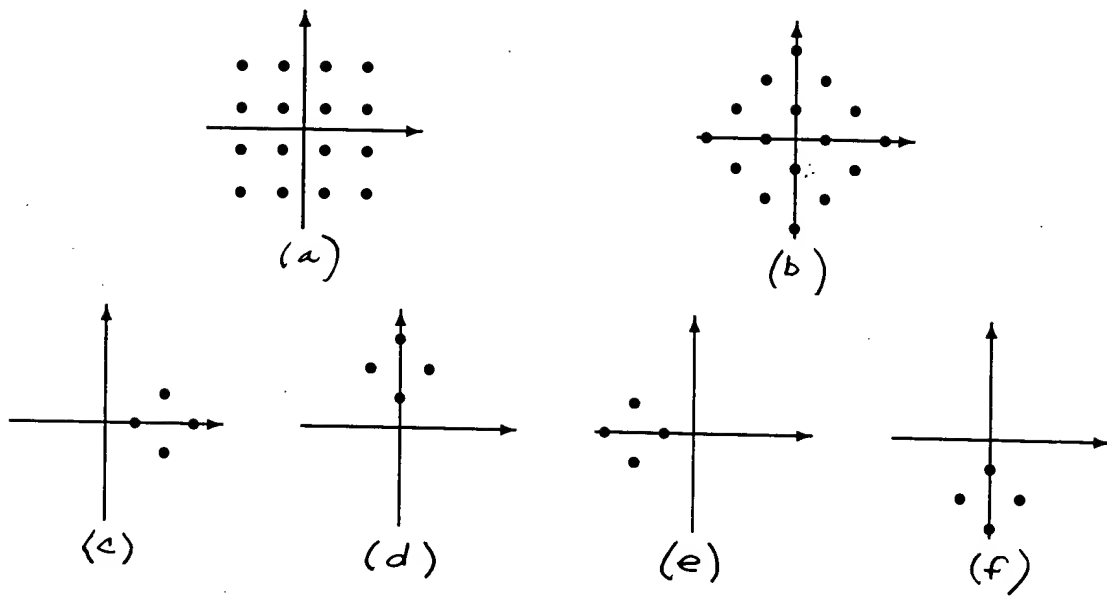


FIG. 7

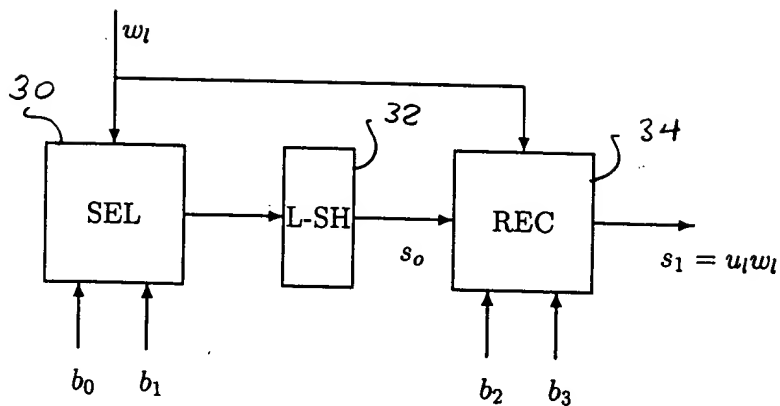


FIG. 8

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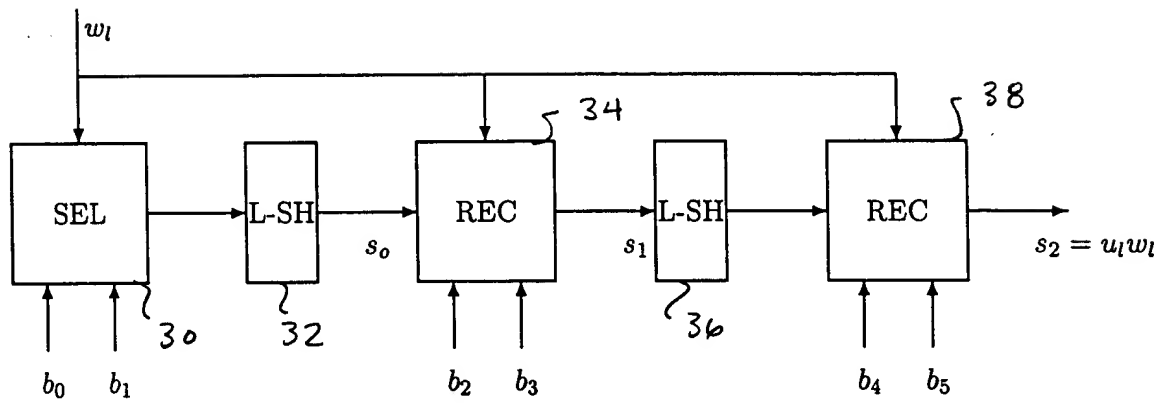


FIG. 9

	SECTION 1.1	Conventional
Modulation	No. of Add/Sub operations	No. of Add & Multiply
QPSK	$2M - 2$	$(4M-2) \& 4M$
16-QAM	$3M - 2$	$(4M-2) \& 4M$
64-QAM	$4M - 2$	$(4M-2) \& 4M$
256-QAM	$5M - 2$	$(4M-2) \& 4M$
1024-QAM	$6M - 2$	$(4M-2) \& 4M$

FIG. 10

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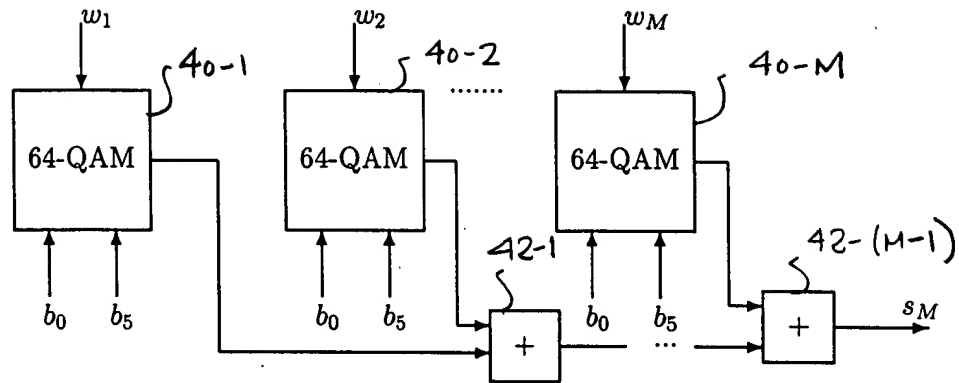


FIG. 11

$S(A)$	$S(B)$	op	Z	$S(Z)$
+	+	$A + B$	$A + B$	+
+	-	$A - B$	$A - B$	+
-	+	$B - A$	$B - A$	+
-	-	$-A - B$	$A + B$	-

FIG. 12

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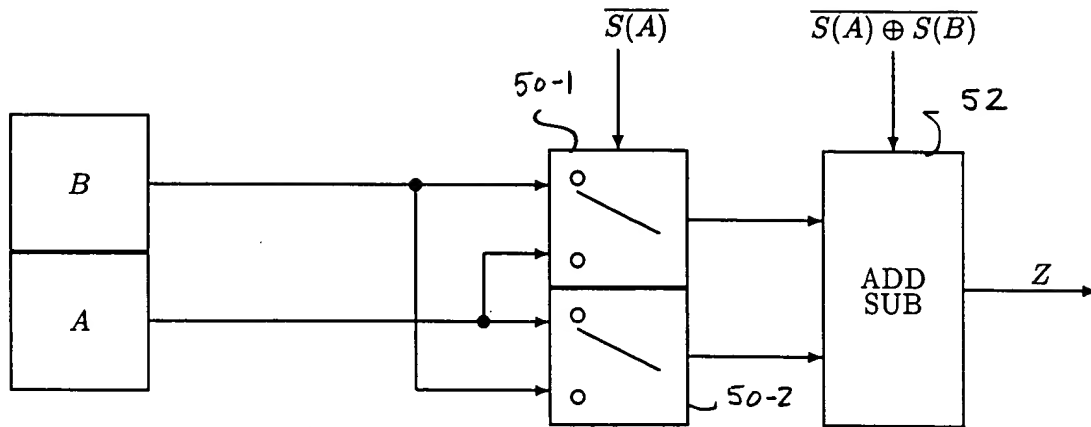


FIG. 13

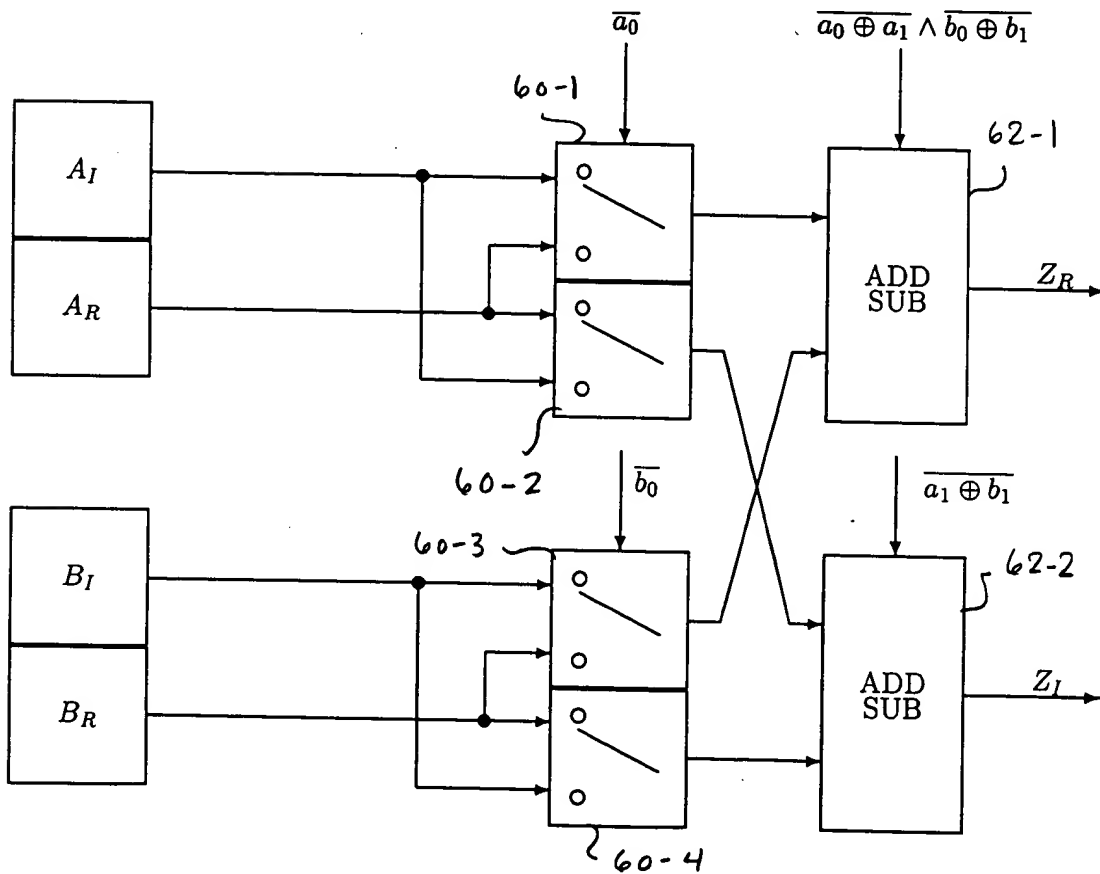


FIG. 14

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Modulation	Complexity	Minimum latency
QPSK	$4M$	$2 + \log_2 M$
16-QAM	$8M$	$4 + \log_2 M$
64-QAM	$12M$	$6 + \log_2 M$

FIG. 15

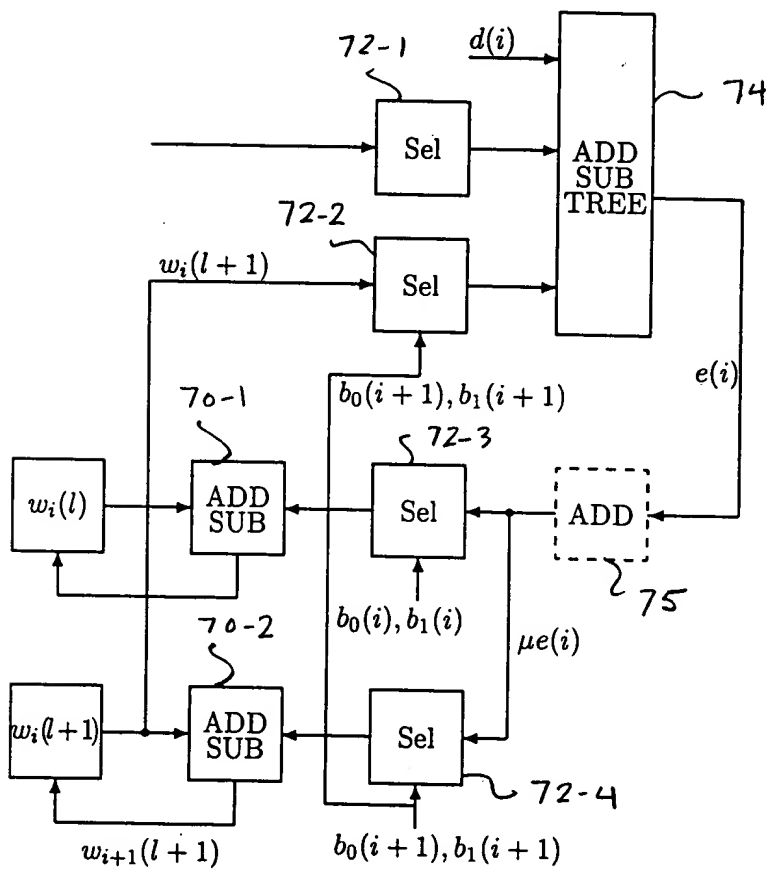


FIG. 16

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Modulation	Conventional	SECTION 1.1	minimal operations (Section 1.2)
QPSK	$2 \times 4 = 8$	0	0
16-QAM	$4 \times 16 = 64$	32	14
64-QAM	$4 \times 64 = 256$	160	68

FIG. 17

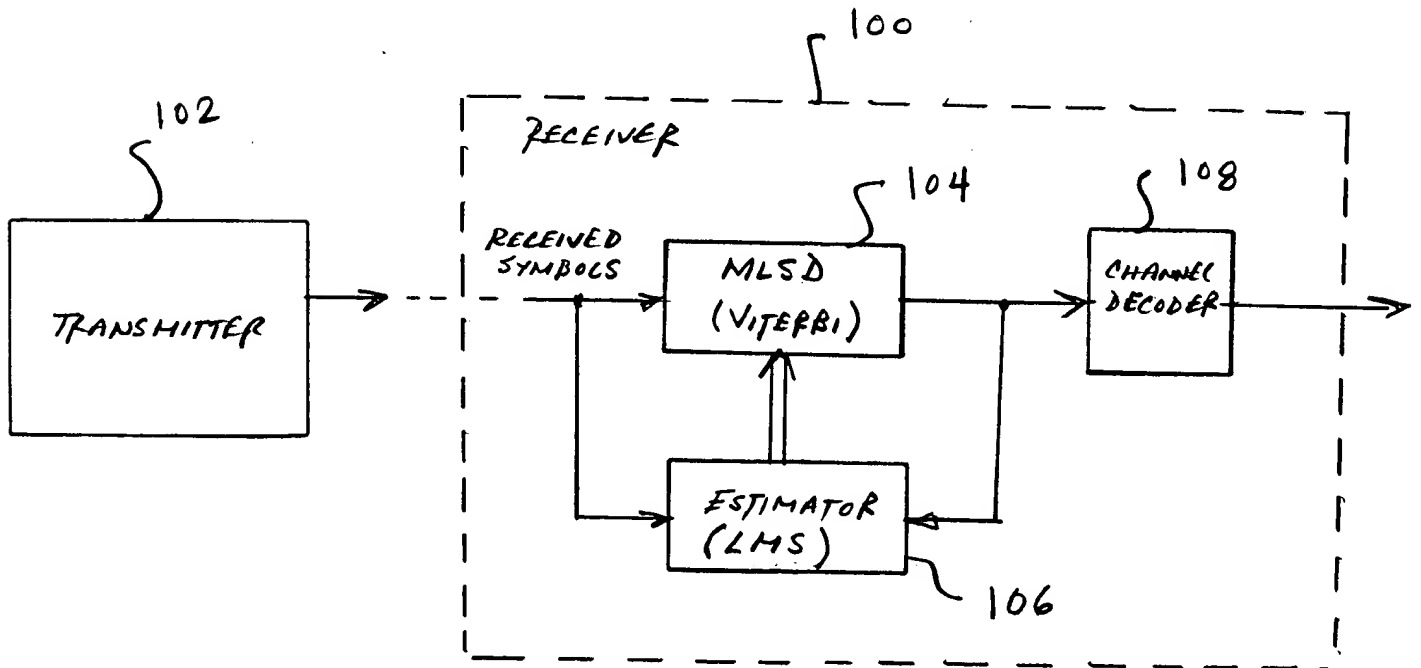


FIG. 18

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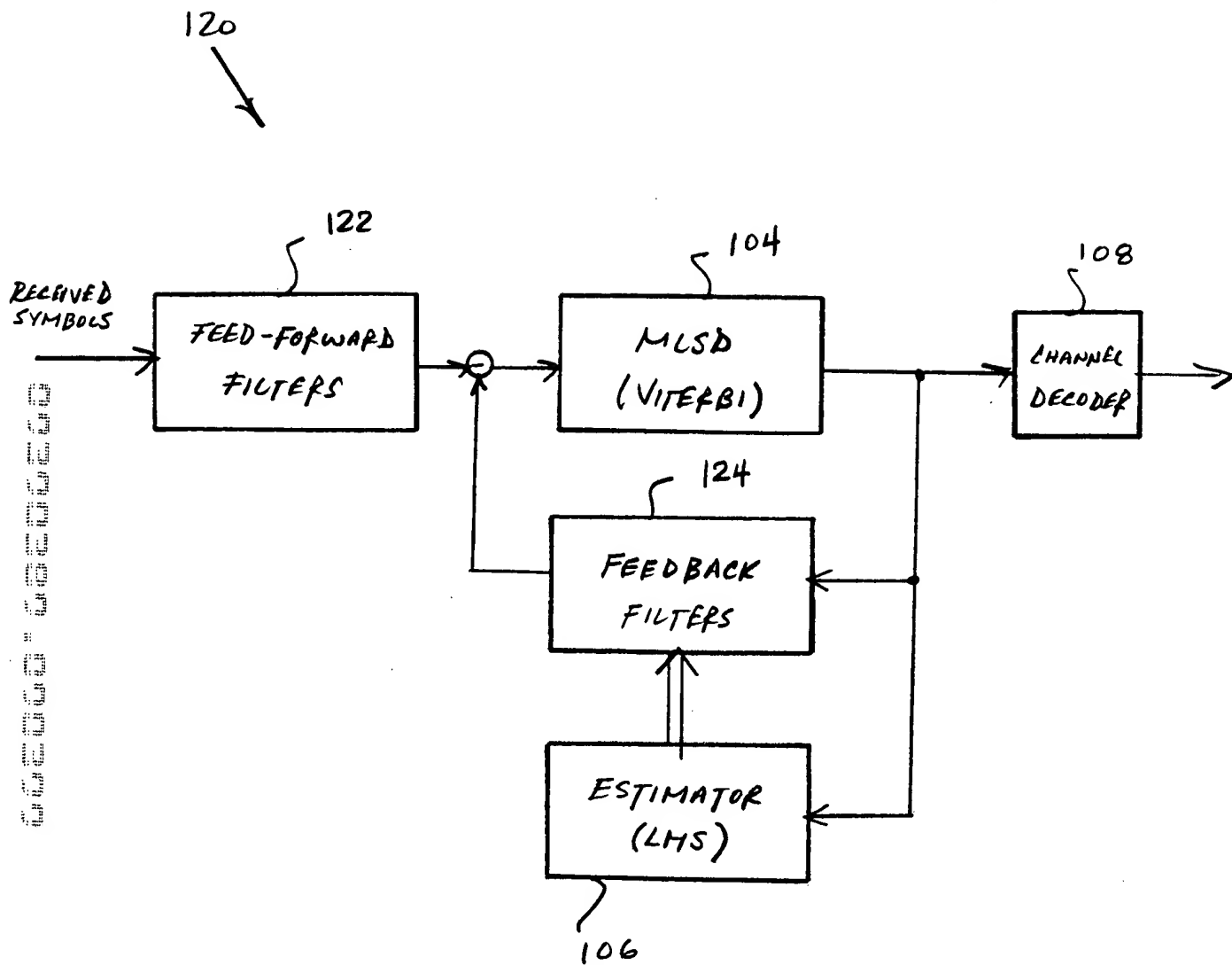


FIG. 19